S/879/62/000/000/059/088
D234/D308

AUTHOR: Aleksandrov, A. Ya. (Novosibirsk)

TITLE: Local stability of three-layer plates with honeycomb-shaped filler

SOURCE: Teoriya plastin i obolochek: trudy II Vsesoyuznoy konferentsii, L'vov, 15-21 sentyabrya 1961 g. Kiev, Izd-vo AN USSR, 1962, 347-349

TEXT: The author gives expressions for the critical loads found by him using the energy method, stating that these have been verified experimentally and found to be valid for stresses not exceeding the proportionality limits. The critical load per unit edge width is $34.9\ (D_1 + D_2)/r^2 + T_3$ for compression in the x direction, and $31.3\ (D_1 + D_2)/r^2 + T_3$ for compression in the y direction. Here

Card 1/2

Local stability of ...

S/879/62/000/000/059/088
D234/D308

$$T_3 = \frac{2rh\pi^2 D_4}{\sqrt{3}\left(\frac{3}{4}k^2 + \frac{16}{3\pi}k + 2\right)} \frac{1}{r^2} + \frac{1}{4h^2}^2\left[\left(\frac{5}{16}k^2 + \frac{2}{3\pi}k\right) + \right.$$

$$\left. + \left(\frac{1}{r^2} + \frac{1}{16h^2}\right)^2 + \frac{1}{128h^4}\right]$$

and k is found from a quadratic equation in terms of r and h. There are 3 figures.

Card 2/2

S/879/62/000/000/078/088
D234/D308

AUTHOR: Aleksandrov, A. Ya. (Novosibirsk)

TITLE: Optimal parameters of three-layer plates with a plastic foam filler, subjected to compression

SOURCE: Teoriya plastin i obolochek: trudy II Vsesoyuznoy konferentsii, L'vov, 15-21 sentyabrya 1961 g. Kiev, Izd-vo AN USSR, 1962, 463-466

TEXT: The author takes into account the strength of the filler. The problem reduces to a simultaneous solution of equations given in previous papers of the author. These were solved on a 'Ural' computer. Several graphs obtained are given as examples. There are 2 figures.

Card 1/1

ABRAMYAN, B.L. (Yerevan); ALEKSANDROV, A.Ya. (Novosibirsk)

"Axisymmetric problems of elasticity"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

ALEKSANDROV ,A.Ya.; (Novosibirsk)

"Study of elastic-plastic problems by means of photoelastic coatings"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

ALEKSANDROV, A.Ya. (Novosibirsk)

Representation of the components of three-dimensional axisymmetric state of a transversally isotropic body by means of the functions of a complex variable and contour integrals. Izv. AN SSSR. Mekh. i mashinostr. no. 2:149-152 Mr-Ap '64.
(MIRA 17:5)

ALEKSANDROV, A.Ya. (Novosibirsk)

Solution of three-dimensional axisymmetric problems on volumetric forces or thermal stresses and the solution of these problems for a sphere. Izv.AN SSSR. Mekh.i mashinostr. no.1:206-208 Ja-F '64. (MIRA 17:4)

ALEKSANDROV, A.Ya.; SOLOV'YEV, Yu.I.

Method of solving axially symmetric problems in the theory of elasticity with the aid of analytic functions extended to three-dimensional problems without axial symmetry. Dokl. AN SSSR 154 no.2:294-297 Ja'64. (MIRA 17:2)

1. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta. Predstavleno akademikom Yu. N. Rabotnovym.

ALEKSANDROV, A.Ya. (Novosibirsk); SOLOV'YEV, Yu.I. (Novosibirsk)

Solution of a three-dimensional axisymmetric problem in the theory of elasticity with the aid of contour integrals. Prikl. mat. i mekh. 28 no.5:914-919 S-O '64.
(MIRA 17:11)

ACCESSION NR: AT4039424 S/2879/64/000/000/0178/0192

AUTHOR: Aleksandrov, A. Ya. (Novosibirsk)

TITLE: Two problems in the calculation of sandwich panels with fillers

SOURCE: Vsesoyuznaya konferentsiya po teorii obolochek i plastin. 4th, Yerevan, 1962. Teoriya obolochek i plastin (Theory of plates and films); trudy* konferentsii, 1964, 178-192

TOPIC TAGS: panel, sandwich panel, three layer panel, sandwich plate, rod filler, foam plastic filler, compression, reinforced foam plastic

ABSTRACT: The two problems considered in this article are: 1) the calculation of sandwich panels with a filler formed by tumbler-like stampings or rods, and 2) the optimal parameters of sandwich plates with fillers of reinforced foam plastic under compression. The panels discussed in the first part of the paper are plane and curvilinear with a filler formed of little tumblers stamped on one of the outer layers and arranged at the apices of a square or triangular grid. The bottoms of these tumbler-like fillers are soldered or welded to the other outer layer (See Figure 1 in the Enclosure). A construction is also possible in which the tumblers are stamped separately and fastened to both external layers of the panel (See Figure 2, a in the Enclosure). In terms of engineering calculations, this

Card 1/9

ACCESSION NR: AT4039424

type of structural arrangement also includes panels having a filler formed of solid rods (See Figure 2, b). The general stability of these panels is calculated on the basis of formulas derived for sandwich panels with solid fillers and various outer layers. The rigidity of the outer layer in which the stampings are made is determined as the reduced rigidity of a plate weakened by apertures and reinforced by soldered tubing (See Figure 2, c). The rigidity of the outer layer, to which the stampings are soldered, is determined as the reduced rigidity of a plate reinforced by washers and tubing (See Figure 2, d). With the tumblers arranged at the apices of a square grid the assumption is made that the sandwich plate, strained by the shift of one outer layer with respect to the other in the direction of the axis Ox, takes on the form shown in Figure 3 of the Enclosure by the broken line. In the case of a triangular grid arrangement of the tumblers, the form of the plate will be that illustrated in Figure 4 of the Enclosure. Formulas for the elastic surface of the element and the reduced modulus of the shift are presented, along with an analysis of the local stability of the outer layers in the event of their compression by longitudinal loads in the form of a curvature corresponding to the strain of the plate elements under shift (See Figure 5 of the Enclosure). In connection with the second problem--that of determing the optimal parameters of sandwich plates with a filler of reinforced foam plastic under compression--the author considers the longitudinal compression of an infinitely wide sandwich plate with identical outer layers and a foam plastic filler reinforced by ribs

Card 2/9

ACCESSION NR: AT4039424

arranged in the direction of the compression (See Figure 6 of the Enclosure). The outer layers, foam plastic and reinforcing ribs are glued together. A solution is provided to the general problem of selecting the parameters of the plate which meet the criteria of minimum plate weight at given load. Conditions providing for overall plate stability, local stability of the outer layers and filler strength are calculated. It is assumed that the conditions for plate strength are met if the magnitude of the load acting on the plate is equal to 2/3 of the critical load of its overall stability, if the stresses in the outer layers do not exceed the limit of proportionality of the material, and if the reduced stresses in the filler, determined in accordance with the 2nd and 3rd theory of strength, are equal to the permissible stresses. Tests were also made to determine the strength of the glue bonds between the filler and the external layers. "The necessary parameters for assurance of rib stability were calculated by A. Ya. Aleksandrov and M. P. Naumova". Orig. art. has: 24 formulas and 14 figures.

ASSOCIATION: None

SUBMITTED: 00	DATE ACQ: 14May64	ENCL: 06
SUB CODE: AS	NO REF SOV: 002	OTHER: 000

Card 3/9

ACCESSION NR: AT4039424

ENCLOSURE: 01

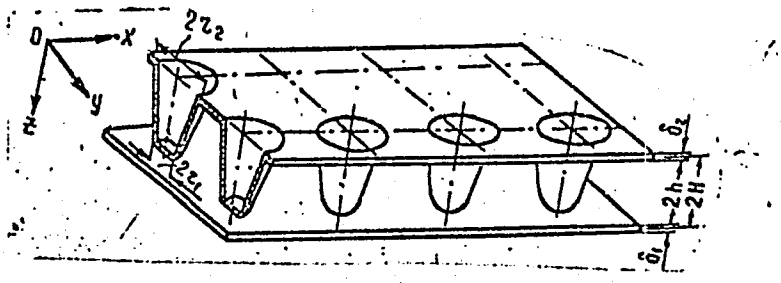


Fig. 1

4/9

Card

ACCESSION NR: AT4039424

ENCLOSURE: 02

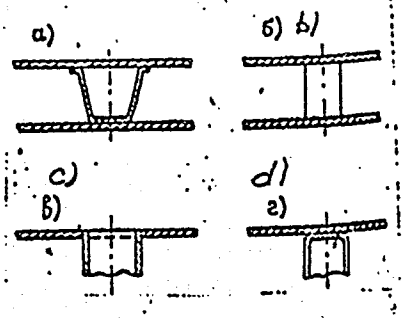


Fig. 2

Card 5/9

ACCESSION NR: AT4039424

ENCLOSURE: 03

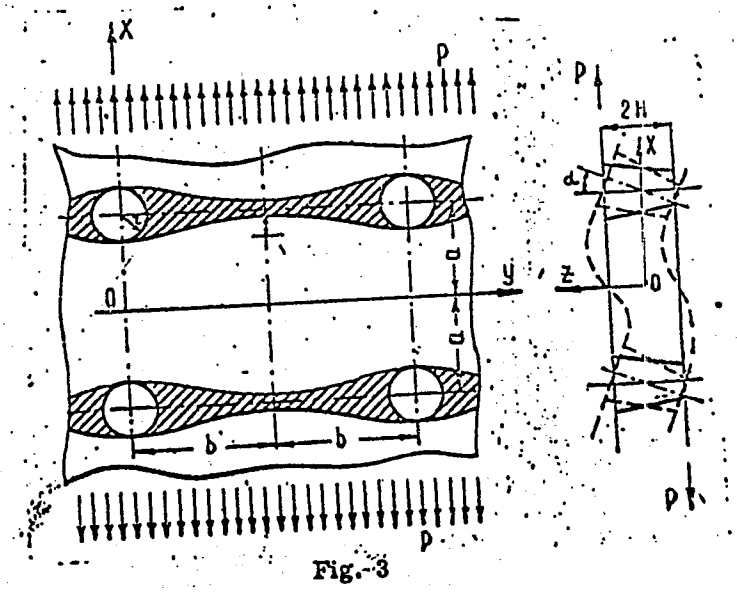


Fig. 3

Card 6/9

ENCLOSURE: 04

ACCESSION NR: AT4039424

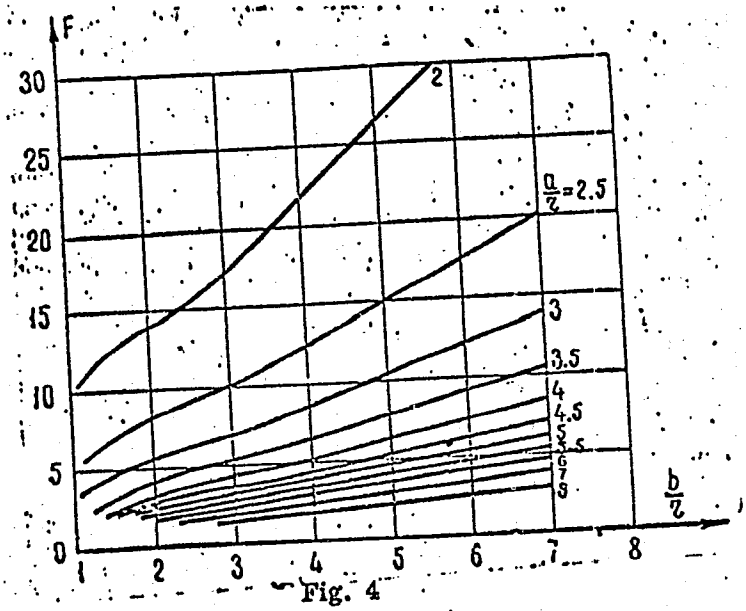


Fig. 4

Card 7/9

ACCESSION NR: AT4039424

ENCLOSURE: 05

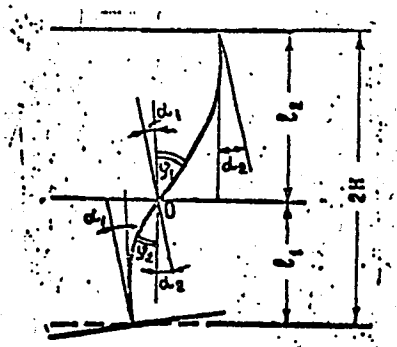
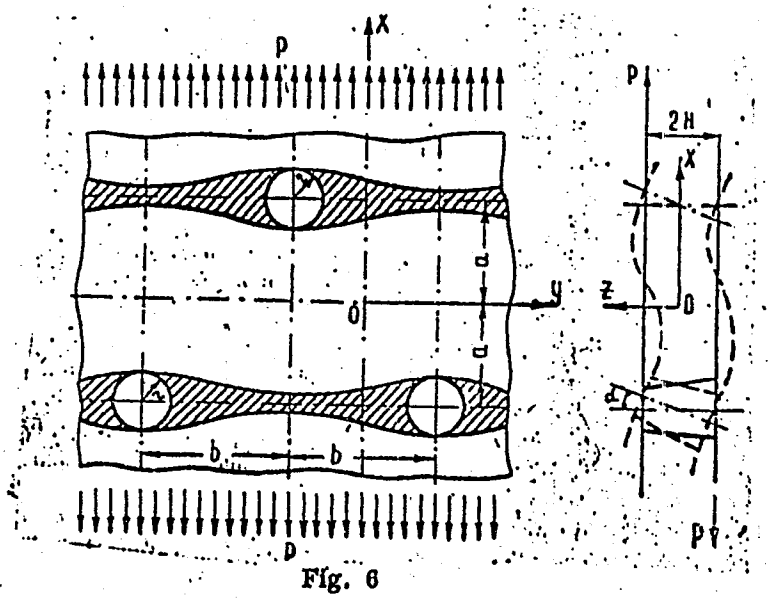


Fig. 5

Card 8/9

ACCESSION NR: AT4039424

ENCLOSURE: 06



9/9

Fig. 6

Card

L 32606-66 EWT(d)/EWT(m)/EWP(w)/EWP(k) IJP(c) EM/GD/RM

ACC NR: AT6011747 SOURCE CODE: UR/0000/65/000/000/0005/0027

AUTHOR: Aleksandrov, A. Ya. (Doctor of technical sciences; Professor)

37
B+1

ORG: none

TITLE: Determination of the reduced elastic parameters of ribbed fillers

SOURCE: Raschety elementov aviatsionnykh konstruktsiy, vyp. 3: Trekhsloynyye paneli i obolochki (Calculation of aircraft construction elements, no. 3: Sandwich panels and shells). Moscow, Izd-vo Mashinostroyeniye, 1965, 5-27

TOPIC TAGS: sandwich structure, shell structure, structure stability, shear modulus, elasticity modulus, ultimate strength, bending strength

ABSTRACT: In order to calculate the ultimate and bending strength of plates and shells with ribbed filler, it is first necessary to find the reduced elastic parameters of the filler. The present article is devoted to investigations of the influence of the longitudinal forces, which compress the external layers of the plate, on the reduced shear moduli of the filler. The author studies the reduced shear modulus of a corrugated-type filler in a plane normal to the corrugation generatrices in the absence of longitudinal forces compressing the plate, and the influence of longitudinal forces compressing the plate on the shear modulus of a corrugated type filler; the reduced shear modulus of a folded filler in a plane normal to the fold generatrices in the absence of longitudinal forces, and the influence of longitudinal forces compressing the plate on the shear modulus of a folded filler. Studies are also made of the

Card 1/2

UDC 629.13.011.1:621.9-417:539.4

L 32606-66

ACC NR: AT6011747 O

shear modulus of a saw-toothed filler, of a reduced elasticity modulus of a corrugated-type filler normal to the plate, and an elasticity modulus of a folded and a saw-toothed filler normal to the plate. Orig. art. has: 15 figures and 32 formulas.

SUB CODE: 20 / SUBM DATE: 25Oct65 / ORIG REF: 005

Card 2/2 00

L 32605-66 EWT(d)/EWT(m)/EWP(w)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/EM/RM/GD

ACC NR: AT6011748 SOURCE CODE: UR/0000/65/000/000/0028/0040

AUTHOR: Aleksandrov, A. Ya. (Doctor of technical sciences; Professor); Vol'pert, V. S.; Masalovich, I. I.

ORG: none

TITLE: Calculation of sandwich panels with a filler formed by cup-shaped stampings or rods

SOURCE: Raschety elementov aviatsionnykh konstruktsiy, vyp. 3: Trekhsloynyye paneli i obolochki (Calculation of aircraft construction elements, no. 3: Sandwich panels and shells). Moscow, Izd-vo Mashinostroyeniye, 1965, 28-40

TOPIC TAGS: sandwich structure, structure panel, shear modulus, bending strength, shell structure, structure stability

ABSTRACT: The calculation of sandwich panels with a filler formed by cup-shaped stampings or rods for bending strength and stability is achieved by means of formulas obtained for sandwich panels with a solid filler. The rigidity of the external layer, in which the stampings are made, is found as the reduced rigidity of a plate weakened by apertures and strengthened by soldered-on tubes. The rigidity of the external layer, to which the stampings are soldered, is determined as the reduced rigidity of a plate strengthened by washers and tubes. The problem of the determination of the reduced shear modulus of a filler and the calculation of external layers for local stability are examined in the present paper for the case when the spacing of the mesh is substantially greater than the diameter of the cup stamping. The

Card 1/2 UDC 629.13.011.1:669-41:539.4

L 32605-66

ACC NR: AT6011748

authors study the reduced shear modulus for the case when the longitudinal forces compressing the external layers are small compared to the critical loads of local strength characteristics. The reduced shear moduli are determined experimentally. Orig. art. has: 13 figures, 1 table, and 22 formulas.

SUB CODE: 20/ SUBM DATE: 25Oct65

Card 2/2

L 10849-67 EWT(d)/EWT(m)/EWP(k)/EWP(w)/EWP(v) IJP(c) EM/RM/WW

ACC NR: AR6034729 SOURCE CODE: UR/0124/66/000/008/V027/V027

35

AUTHOR: Aleksandrov, A. Ya.; Naumova, M. P.

TITLE: Optimum parameters during compression of three-layer sandwich plates and flat shells with a honeycomb filler

SOURCE: Ref. zh. Mekhanika, Abs. 8V202

REF SOURCE: Sb. Raschety elementov aviats. konstruktsiy. Vyp. 4, M., Mashinostroyeniye, 1965, 19-41

TOPIC TAGS: sandwich structure, sandwich plate, critical stress, plastic deformation, flat shell

ABSTRACT: The authors investigated three-layer sandwich plates and flat shells of symmetrical structure with a light-weight honeycomb filler. The optimum parameters are selected from the point of view of minimum weight of the design for three-layer sandwich plates and flat shells when pressing them in one direction. The general stability was analyzed for an infinitely wide sandwich with a honeycomb filler made of a foil, loaded along self-supported and fastened edges, as well as

Card 1/2

L 10849-67
ACC NR: AR6034729 3

the local stability of the outer layers. Equations are derived for determining the critical stresses in the outer layers and the critical loads on the sandwich, taking into account plastic deformations. Bibliography of 3 titles. T. N. Vasitsyna. [Translation of abstract]

SUB CODE: 11, 13/

Card 2/2

ALEKSANDROV, A.Ya., doktor tekhn. nauk, prof.

Design of the shape of free piston rings. Vest. mashinostr. 45 no.4:30-33 Ap '65. (MIRA 18:5)

AIEKSANDROV, A.Ya. (Novosibirsk); SOLOV'YEV, Yu.I. (Novosibirsk)

Applying analytic functions of a complex variable to the solution of three-dimensional nonaxisymmetric problems in the theory of elasticity for bodies of revolution. Izv. AN SSSR. Mekh. no.6:94-99 N-D '65. (MIRA 18:12)

ACC NR: AT7002104 (N) SOURCE CODE: UR/0000/66/000/000/0170/0185

AUTHOR: Aleksandrov, A. Ya.

ORG: none

TITLE: The study of elastoplastic problems by the photoelastic coating method

SOURCE: Vsesoyuznaya konferentsiya po polyarizatsionno-opticheskomu metodu issledovaniya napryazheniy. 5th, Leningrad, 1964. Polyarizatsionno-opticheskiy metod issledovaniya napryazheniy (Polarizing-optical method of investigating stresses); trudy konferentsii. Leningrad, Izd-vo Leningr. univ., 1966, 170-185

TOPIC TAGS: photoelasticity, nondestructive test, test method, stress analysis

ABSTRACT: The author surveys the accomplishments and trends in stress analysis by the photoelastic coating technique. The survey covers advances made in preparation of photoelastic berifringent materials and design of apparatus such as the oblique-incidence and semi-transparent mirror polariscopes. The problems associated with the inaccuracies of measurement due to uneven coat thickness are cited. In the field of investigation of elastoplastic problems the accomplishments made in the determination of elastic deformation bounds, and stresses in planar elements subject to plastic deformations are described. In view of the strides made in this field

Card 1/2

ACC NR: AT7002104

future possible applications of this method are analyzed. These include the study of stress concentration in the plastic region, verification of basic hypotheses of plasticity, investigation of small deformations in metals and elastic shells, measurement of residual stresses and deformations, and dynamic and fatigue testing of materials.

SUB CODE: 14, 20/ SUBM DATE: 14Jun66/ ORIG REF: 046/ OTH REF: 035

Card 2/2

S/195/61/002/005/025/027
E194/E412

AUTHORS: Aleksandrov, A.Yu., Yanovskiy, M.I.

TITLE: A flow proportional counter for capillary radio-chromatography

PERIODICAL: Kinetika i kataliz, v.2, no.5, 1961, 794-800

TEXT: In the recently developed capillary gas-liquid chromatography a tube of 0.25 to 0.35 mm diameter and 50 to 200 m long is wetted on the inside with a thin film of low volatile fluid. The amount of mixture necessary for effective separation on the capillary column is 5 to 10 micrograms and high sensitivity detectors (10^{-11} to 10^{-13} moles) of very low volume (10 to 50 mm^3) have been developed to determine these small quantities, generally using flame ionization and β-ionization detectors. It would be very convenient to develop a capillary radio-chromatograph which could quickly analyse the complicated mixture such as is formed in a catalytic vacuum equipment of 2 litres volume at pressures of 10^{-5} to 10^{-7} mm Hg. This article gives a brief review of published work on detectors and the results of experimental work undertaken to investigate the possibility of developing a capillary radio-chromatograph. The relative merits of

Card 1/4

S/195/61/002/005/025/027
E194/E412

A flow proportional counter ...

ionization chambers, geiger-muller counters, scintillation counters and proportional counters for recording ionizing radiation of gaseous radioactive substances are compared. It is concluded that the proportional counter is the most suitable; it is not very sensitive to chemical contamination of the working medium and can record comparatively active samples and operate stably at temperatures up to 125°C. However, the electronic measuring equipment required with proportional counters is more complicated than with geiger-muller counters. The present work was carried out with proportional counters of the kind illustrated in Fig.1 but of various sizes. In this diagram the gas enters at the lower left tube and leaves at the upper right, the notation is as follows: 1 - spring, 2 - frame, 3 - teflon gland, 4 - anode, 5 - plug connection, 6 - nut. Counter diameters ranged from 2 to 20 mm and lengths from 10 to 50 mm. Since argon was used as the carrier gas, the calibration was also made on argon using methane as a damper. Preliminary tests showed that the results were little influenced by the degree of purity of the methane. As the methane content is increased, it is necessary to increase the working voltage but if the internal diameter of the cathode is

Card 2/4

A flow proportional counter ...

above 10 mm, this has little influence on the operation of the counters which have a fully acceptable plateau up to 400 V even when pure methane is passed. Moreover, the best operating conditions are obtained when the argon and methane are in the ratio of 1:1. The counter characteristics do not alter much in the range 20 to 120°C. Stable conditions could not be obtained above this temperature with mixtures of argon and methane using teflon glands. The mean relative errors in measuring radioactivity of acetone, ethanol and benzene are 1.36, 3.34 and 5.6% respectively. The accuracy of measurement falls as the quantity of radioactive substance is reduced. The use of large volume counters increases the sensitivity and accuracy of measurement but reduces the effectiveness of the capillary column.
A calibration curve was plotted to determine the sensitivity of the counter and it is found that the detector reading is a linear function of the concentration giving a potentiometer reading of approximately 150 mm for a sample quantity of 7×10^{-6} g. Then radioactive acetone with a specific radioactivity of 8×10^{-3} micro curies/g was passed through the equipment and a radiochromatogram was obtained. The sensitivity of the equipment

was 4.5×10^{-10} curie/mm.ml. Reckoning the threshold of sensitivity as the value of activity which exceeds fluctuation of the baseline by a factor of 3 to 5, the threshold of sensitivity for the instrument is 1.35×10^{-9} to 2.25×10^{-9} curies. There are 4 figures, 3 tables and 12 references: 8 Soviet-bloc and 4 non-Soviet-bloc. The references to English language publications read as follows:

Ref.2: M.I.E.Golay, Nature, Lond., v.182, 1146, 1958;
Ref.3: J.G.McWilliam, R.A.Dewar, Nature, Lond., v.182, 1664, 1958;
Ref.9: R. Wolfgang, Nucleonics, v.16, no.10, 69, 1958;
Ref.10: R.Wolfgang, An. Chem., v.30, 903, 1958.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR
(Institute of Chemical Physics AS USSR)

S/056/62/043/004/018/061
B102/B180

AUTHORS: Aleksandrov, A. Yu., Delyagin, N. N., Mitrofanov, K. P., Polak, L. S., Shpinel', V. S.

TITLE: Quadrupole interaction and isomeric shifts of 23.8-kev gamma transition of Sn^{119} nucleus in organo-tin compounds

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1242 - 1247

TEXT: In continuation of earlier studies (ZhETF, 42, 637, 1962; 43, 448, 1962) on the Mössbauer resonance absorption spectra of 23.8-kev γ-quanta by Sn^{119}, this work deals with the effect of substituting certain atomic groups in organic compounds of the $(C_4H_9)_2SnX_n$ type, and SnX_4 by others on the isomeric shift δ, and the quadrupole interaction; X is an element or a group of atoms, n = 1, 2. The resonance absorption spectra were recorded with a) an absorber whose velocity was varied linearly with time and b) one of constant velocity, the thicknesses varying from 30 - 100 mg/cm^2. The latter method yielded more accurate spectra since the device used had

Card 1/12

Quadrupole interaction ...

selective sensitivity to 23.8-kev γ-quanta. 5 mg/cm^2 SnO_2 containing Sn^{119m} was used as a γ-quantum source. The organo-tin compounds investigated had no impurities which affected the shape of the spectrum. In all measurements the source was kept at room temperature and the absorber at liquid-nitrogen temperature. The values obtained for δ and for the quadrupole splitting constant Δ vary regularly for the compounds for which the electronegativity of the X atoms varies. Double bonds, and also atoms with high electronegativity not directly bonded with the tin atoms, were found to exert a strong effect on the electric field strength acting on the tin nucleus. This can be qualitatively explained by the molecular structure. There are 3 figures and 1 table.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University). Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute of Petrochemical Synthesis of the Academy of Sciences USSR)

SUBMITTED: May 18, 1962

Card 2/12

S/056/62/043/006/018/067
B102/B104

AUTHORS: Aleksandrov, A. Yu., Delyagin, N. N., Mitrofanov, K. P., Polak, L. S., Shpinel', V. S.

TITLE: Influence of gamma irradiation on the shape of Mössbauer resonance absorption spectra of organo-tin compounds

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6(12), 1962, 2074 - 2076

TEXT: The spectra of Mössbauer resonance absorption of 23.8-kev gamma quanta by Sn^{119} in organo-tin compounds depends on the valency of the absorbing atom, on the molecular structure and on peculiarities of the bonds of the tin atom (ZhETF, 43, 448, 1962; 43, 1242, 1962). This dependence could be used to draw conclusions on irradiation-induced changes of a material from changes in the Mössbauer resonance absorption characteristics. In order to study these possibilities, the Mössbauer resonance absorption spectra of $(C_4H_9)_2SnSO_4$ (I) and $\left[(C_4H_9)_2Sn(OCOCCH_3CH_2)_2\right]_n$, irradiated at 25-35°C by Co^{60} γ-rays with doses between $4\cdot10^{20}$ and $3\cdot10^{22}$ ev/cm^3 were

Card 1/3

Influence of gamma ...

investigated. The spectrum of non-irradiated I shows a symmetric doublet, the peaks corresponding to the velocities -0.6 and +4.2 mm/sec. Irradiation with maximum dose led to a distinct change in the spectrum: two lines with an intensity ratio 1:3 arose, corresponding to the velocities -0.3 mm/sec and 4 mm/sec. indicating a disintegration of I into C_4H_9 and $SnSO_4$. In a few cases only one oxygen atom was split off from I. On irradiating I in the presence of oxygen only one line appeared, its peak corresponding to zero velocity. This spectrum is interpreted as due to the presence of SnO_2 or a similar oxide formed in oxidation by O_3 produced on irradiation. The spectrum of the polymer irradiated with a dose of 11.2 Mr shows two lines of almost equal width and intensity at -0.15 and 2.85 mm/sec. When the dose is increased to 160 Mr both lines broaden, the latter doing so more rapidly but reducing its height at the same time. When the dose has reached 250 Mr, the line at -0.15 mm/sec has remained almost unchanged (width 1.5 mm/sec) but the 2.85 mm/sec line shows a splitting into several flat poorly resolved components. This asymmetry can be explained by assuming an intramolecular magnetic field whose energy of

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820010-9"

Influence of gamma ...

interaction with the Sn^{119} nucleus is weaker than that of quadrupole interaction. It cannot be attributed to any certain chemical structure. There is 1 figure.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University); Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute of Petrochemical Synthesis of the Academy of Sciences USSR)

SUBMITTED: July 20, 1962

Card 3/3

S/020/63/148/001/027/032
B101/B186

AUTHORS: ~~Aleksandrov, A. Yu.,~~ Delyagin, N.N., Mitrofanov, K.P., Polak, L.S., Shpinel', V.S.

TITLE: Investigation of organo-tin compounds by Mössbauer resonance absorption of gamma quanta

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 1, 1963, 126-128

TEXT: The 23.8 kev gamma absorption spectra by Sn^{119} nuclei were investigated for 22 organo-tin compounds. $Sn^{119m}O_2$ was used as gamma source, and the absorbers were cooled to nitrogen temperature. The isomeric shift δ and the amount Δ of the quadrupole splitting were measured. Results: (1) In the compounds SnR_4, where R = C_2H_5, C_6H_6, C_3H_7, C_4H_9, or CH_2CH_2CN, δ was ~1.3 mm/sec, corresponding to the electron density caused by 4 Sn-C bonds on the Sn nucleus. The atoms not bound to Sn had no effect on δ. (2) In the compounds $(C_4H_9)_2(C_nH_{2n+1}COO)_2$, n = 1, 7, or 17, δ was 1.45±0.10 mm/sec, and Δ was 3.45±0.20 mm/sec. n

Card 1/3

had no effect on the electron distribution in the Sn-O bond. (3) The highly electronegative chlorine affected δ, even if it was not bound to Sn. Data found for $(C_4H_9)_2Sn(CH_2ClCOO)_2$: δ = 1.60±0.10, Δ = 3.65±0.10, and for $(C_4H_9)_2Sn(CCl_3COOH)_2$: δ = 1.65±0.10, Δ = 3.80±0.10. (4) For $FSn(CH_2CH_2CN)_3$ and $(C_2H_5)_3SnOH$, the doublet formed by quadrupole interaction was found to be asymmetric. It is assumed that the quadrupole interaction is accompanied by a magnetic interaction affected by m. If an internal magnetic field exists in the molecule perpendicularly to the electric field the component of the quadrupole splitting is affected by whether the transition occurs from the m = ± 3/2 or from the m = ±1/2 sublevel. There are 1 figure and 1 table.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute of Petrochemical Synthesis of the Academy of Sciences USSR); Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova (Institute of Nuclear Physics of the Moscow State University imeni M.V. Lomonosov)

S/020/63/148/001/027/032
B101/B186

Investigation of organo-tin compounds ...

PRESENTED: July 21, 1962 by A.P. Vinogradov, Academician

SUBMITTED: July 21, 1962

Card 3/3

ALEKSANDROV, A.Yu.; MITROFANOV, K.P.; OKHLOBYSTIN, O.Yu.; POLAK, L.S.; SHPINEL', V.S.

Some features of the Mössbauer effect on Sn^{119} nuclei in organotin oxides. Dokl. AN SSSR 153 no.2:370-373 N '63. (MIRA 16:12)

1. Institut neftekhimicheskogo sinteza AN SSSR i Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova. Predstavleno akademikom A.P.Vinogradovym.

ALEKSANDROV, A. Yu.; BERLYANT, S.M.; KARPOV, V.L.; LESHCHENKO, S.S.; OKHLOBYSTIN, O.Yu.; FINKEL', E.E.; SHPINEL', V.S.

Study by the Mössbauer effect of the behavior of dibutyltin dimaleate as stabilizer in the irradiation of polyethylene. Vysokom. soed. 6 no.11:2105-2107 N '64 (MIRA 18:2)

L 39282-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EPR/EWP(k)/EWI(h) Pf-4/Peb
EM/GS

ACCESSION NR: AT5000819 S/0000/64/000/004/0055/0062

35
B+1

AUTHOR: Aleksandrov, A. Ya. (Novosibirsk)

TITLE: Solution of spatial axiosymmetrical elastic problems with volumetric forces or temperature stresses for a sphere or a space with a spherical cavity

SOURCE: Nauchnoye soveshchaniye po teplovym napryazheniyam v elementakh konstruktsiy, 4th. Teplovyye napryazheniya v elementakh konstruktsiy (Thermal stresses in construction elements); doklady soveshchaniya, no. 4. Kiev, Naukova, dumka, 1964, 55-62

TOPIC TAGS: rocket design, thermal stress, axiosymmetrical load, sphere, spherical cavity, elastic stress, body of revolution

ABSTRACT: In a paper published by the author in 1963, the method of solving axiosymmetrical problems by the theory of elasticity using analytical functions was broadened to cover the case of volumetric forces or temperature fields. By superposition, rotating the plane or by linear displacement of the axiosymmetry, two systems were obtained for the components of axiosymmetry expressed by the potential of volumetric forces and two analytical functions. The present paper

Card 1/2

L 39282-65

ACCESSION NR: AT500819

shows that the expressions obtained by both superpositions for volumetric forces are unified in the same way as when the volumetric forces are lacking, correcting the errors made in the previously published paper. The case when a system of radial and vertical volumetric forces acts on a body is considered, as well as a problem with temperature stress. Stresses are calculated, as well as deformations in the body of revolution. Differential equations are given for the stresses under loads and the influence of temperature. Orig. art. has: 18 formulas and 1 figure.

ASSOCIATION: None

SUBMITTED: 02Jun64 ENCL: 00 SUB CODE: AS, ME

NO REF SOV: 005 OTHER: 000

Card 2/2

ALEKSANDROV, A.Yu.; DORFMAN, Ya.G.; LEPENDINA, O.I.; MITROFANOV, K.P.; PLOTNIKOVA, M.V.; POLAK, L.S.; TEMKIN, A.Ya.; SHPINEL', V.S.

Resonance absorption spectra of γ-quanta and the magnetic susceptibility of solutions of some organotin compounds. Zhur. fiz. khim. 38 no.9:2190-2197 S '64. (MIRA 17:12)

1. Institut neftekhimicheskogo sinteza AN SSSR i Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.

L 16719-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP4043550 S/0020/64/157/004/0934/0937

AUTHORS: Aleksandrov, A.Yu.; Okhlovy*stin, O.Yu.; Polak, L.S.; Shpinel', V.S. B

TITLE: Moesbauer effect in unsymmetrical organotin compounds containing electron donor substituents

SOURCE: AN SSSR. Doklady*, v. 157, no. 4, 1964, 934-937

TOPIC TAGS: Moesbauer effect, unsymmetrical organotin compound, organotin compound, tetravalent tin compound, resonance absorption spectrum, electron donor group, triphenyltinlithium, hexaethyldistannane, hexaphenyldistannane, quadrupole splitting, isomeric shift, doublet line

ABSTRACT: The resonance absorption spectra of unsymmetrical organotin compounds containing electron donor (with respect to the tin atom) substituents, and of certain other tetravalent tin compounds, were studied. Measurements were made at liquid nitrogen temperature; Sn^{119} (as SnO_2) was used as the γ-ray source; the γ-quantum of 23.8 kev was registered on a resonance counter. The spectra of R_nSnH_{4-n}, R_3SnLi (triphenyltinlithium), $R_3Sn-SnR_3$ (hexaethyl- and hexaphenyl-

Card 1/3

distannane) and R_3SnR' type compounds were all singlets with maxima at 1.45, 1.40, 1.55, corresponding to line widths of 1.15-1.20 mm/sec. Regardless of the electron donor substituent bonded directly to the Sn, the quadrupole splitting Δ was 0; the symmetry of the p-component of the four Sn bonds was not noticeably disturbed, and the density of the s-electrons near the Sn^{119} nucleus was increased only slightly. While $\Delta = 0$ in donor (D)-containing molecules R_nSnD_{4-n}, the quadrupole splitting in acceptor (A) type molecules R_nSnA_{4-n} varied from 0 to 4.8 mm/sec, depending on A. In both of these types of Sn compounds the isomeric shift varied within $\pm$ 50% of $\delta = 1.30$ for the symmetrical R_4Sn, indicating the isomeric shift caused by electron acceptor groups was compensated to a great degree by the electron donor substitutents; in inorganic tin compounds, δ varied from 0 to 4. In compounds of the type $(C_4H_9)_nSn(OCOC(CH_3)=CH_2)_{4-n}$ the resonance absorption spectra had a doublet structure; the quadrupole split increased with increase in number of substitutent radicals and was smaller in polymers in comparison to the respective monomers. The values for Δ and δ for $(C_4H_9)_2Sn(OCO(CH_2)_nCH_3)_2$, containing no double bond, were identical with those for the corresponding unsaturated compound; δ again depended little on the exchange of alkyl groups for

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820010-9"

L 16719-65
ACCESSION NR:: AP4043550

8

electron acceptor groups and almost none on increasing the number of these groups. The resonance absorption spectra for $(CH_3)_3SnC_6H_5$, $(CH_3)_3SnCH=CH_2$ and $(CH_3)_3Sn(C_6H_4)CH=CH_2$ also had only singlet lines and was the same as for $(CH_3)_4Sn$, indicating exchange of CH_3 by C_6H_5, or a conjugated bond system did not change the electron density or cause a gradient in the electric field of the Sn^{119} nucleus. "The authors thank T. Krasnov, L. V. Layn for supplying some samples of the organotin compounds and M. Ye. Dyatkin and G. K. Semin for valuable remarks in discussing the work." Orig. art. has: 1 table.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute of Petrochemical Synthesis, Academy of Sciences SSSR); Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Organometallic Compounds, Academy of Sciences SSSR); Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Moscow State University)

Submitted: 24Apr64 Encl: 00

Sub Code: GC, GP Nr Ref Sov: 005 Other: 000

Card 3/3

L 28756-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5004375 33 29 B S/0056/65/048/001/0069/0071

AUTHOR: Shpinel', V. S.; Aleksandrov, A. Yu.; Ryasnyy, G. K.; Okhlopystin, O. Yu.

TITLE: Asymmetry of the doublet in Mossbauer resonance absorption spectra of some organic compounds of tin

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 1, 1965, 69-71

TOPIC TAGS: tin, Mossbauer effect, asymmetry, line width, doublet splitting

ABSTRACT: The asymmetry of the doublet in the resonance absorption spectrum of $(C_6H_5)_2SnCl_4$, noted first by Bryukhanov et al. (ZhETF v. 43, 418, 1962), is considered. Various experiments carried out to find the cause of this asymmetry in a polycrystalline sample are described. The measurements were made with constant-velocity apparatus, using a source of Sn^{119} in the form of SnO_2 and Mg_2Sn. The gamma quanta were detected by a standard scintillation method using a resonant counter. The spectra obtained upon application of a magnetic field to the absorber showed that the doublet structure is actually due to quadrupole interaction. NMR magnetic measurements of this compound, made by I. F. Shchegolev of the In-

Card 1/2

L 28756-65

ACCESSION NR: AP5004375

4

stitut fizicheskikh problem (Institute of Physical Problems) AN SSSR, have shown that there are no regions with unpaired spins in this molecule, and that the asymmetry of the doublet has no magnetic origin. Later investigations have established that after careful purification and recrystallization of the sample, carried out at Institut elementoorganicheskikh soyedineniy (Institute of Organoelemental Compounds) AN SSSR, the resonance absorption spectrum became a symmetrical doublet. It is concluded from the results that some tin-organic fractions are present in this compound and that the spectrum is the result of superposition of the two spectra, of $(C_2H_4)_2SnCl_2$ and $(C_6H_5)_2SnCl_2 \cdot nH_2O$. The asymmetry is obtained when the components near zero velocity coincide while the other two are shifted somewhat relative to each other. "We thank I. F. Shchegolev for the NMR measurements." Orig. art. has: 1 figure.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics, Moscow State University)

SUBMITTED: 03Jul64 ENCL: 00 SUB CODE: NP, IC

NR REF SOV: 004 OTHER: 000

Card 2/2

ALEKSANDROV, A.Yu.; BREGADZE, V.I.; GOL'DANSKIY, V.I.; ZAKHARKIN, L.I.; OKHLOBYSTIN, O.Yu.; KHRAPOV, V.V.

Organotin derivatives of barenes studied by means of Mössbauer spectroscopy. Dokl. AN SSSR 165 no.3:593-596 N '65. (MIRA 18:11)

1. Institut khimicheskoy fiziki AN SSSR i Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Gol'danskiy).

L 37131-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(j)/T/EWP(k) LJP(c) WW/EM/GD/RM
ACC NR: AT6011749 SOURCE CODE: UR/0000/65/000/000/0041/0058

AUTHOR: Aleksandrov, A. Ya. (Doctor of technical sciences, Professor); Naumova, M. P.

ORG: None

TITLE: Optimal parameters of sandwich panels and sloping shells with filler of nonreinforced and reinforced foamed plastic under compression

SOURCE: Raschety elementov aviatsionnykh konstruktsiy, vyp. 3: Trekhsloynyye paneli i obolochki (Calculation of aircraft construction elements, no. 3: Sandwich panels and shells). Moscow, Izd-vo Mashinostroyeniye, 1965, 41-58

TOPIC TAGS: shell structure, sandwich structure, reinforced shell structure

ABSTRACT: A large number of papers have been published on the problem of determining optimal (from the point of view of a minimum-weight structural design) panel parameters. However, without exception, in all of these studies the solution of the problem failed to take into consideration the strength of the filler, on the supposition that filler failure could not occur; this despite the fact that it has been amply demonstrated in a number of experimental works that, with severe stresses in the outer layers, the magnitude of the load which a foam-plastic-filled sandwich plate can withstand is more often than not limited pre-

UDC 629.13.011.1:678.632:539.4

Card 1/3

cisely by this very filler strength factor. In the present article, the optimum problem is solved with due consideration of the aspect of filler strength. The paper is in six parts. An analysis is given of longitudinal compression of an infinitely wide sandwich plate with identical outer layers and having a filler of foamed plastic, both nonreinforced and reinforced with ribbing arranged in the direction of the compression. The external layers, the foamed plastic filler, and the reinforcing ribs are glued together. A solution is provided to the problem of selecting plate parameters which will satisfy the requirement of minimum plate weight for prescribed plate length and load for situations when both loaded edges are freely suspended and both are clamped, or when one is free and the other clamped. Conditions providing for overall plate stability, local stability of outer layers, and filler strength are satisfactorily fulfilled. Here the authors assumed that plate strength conditions are met if the magnitude of the load acting on the panel equals 2/3 of the critical load for its overall stability, if the stresses on the outer layers do not exceed the limit of proportionality of the material, and if reduced stresses in the filler do not exceed permissible values. An outline is given for an approximate method by means of which graphs, constructed for the determination of optimum parameters of compressed infinitely wide sandwich panels, can be employed for an approximate determination of these parameters for various planar configurations and also when the edges of the compressed plates and sloped shells are

L 37131-66

ACC NR: AT6011749

fastened under various conditions. Orig. art. has: 9 figures and 18 formulas.

SUB CODE: 13 / SUBM DATE: 25Oct65 / ORIG REF: 003 / OTH REF: 008

Card 3/3 af

L 32969-66 EWT(d)/EWT(m)/EWP(k)/T-2/EWP(w) IJP(c) EM

ACC NR: AT6016913 (N) SOURCE CODE: UR/0000/65/000/000/0097/0118

40
0+1

AUTHOR: Aleksandrov, A. Ya.

ORG: Novosibirsk Institute of Railroad Engineers (Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta)

TITLE: The solution of axisymmetrical and certain other space problems in the theory of elasticity by means of analytical functions

SOURCE: International Symposium on Applications of the Theory of Functions in Continuum Mechanics. Tiflis, 1963. Prilozheniya teorii funktsiy v mekhanike sploshnoy sredy. t. 1: Mekhanika tverdogo tela (Applications of the theory of functions in continuum mechanics. v. 1: Mechanics of solids); trudy simpoziuma. Moscow Izd-vo Nauka, 1965, 97-118

TOPIC TAGS: elasticity theory, boundary value problem, axisymmetric body

ABSTRACT: The theory of functions of a complex variable is applied to the solution of problems in the theory of elasticity involving surfaces symmetrical about the axis on the basis of the relation of the axisymmetrical state with the state of a plane surface. The relations between axisymmetrical and plane states are shown and the components for the former are described in functions of a complex variable, first by showing the transformation from the plane to the axisymmetrical state, then by adducing the inverse transformation. A solution for the boundary value problem is given using Cauchy

Card 1/2

L 32969-66

ACC NR: AT6016913

integrals. The results, applying to an isotropic body, are extended to a transverse--isotopic body. Several problems in which the symmetry about the axis does not hold are considered along with their related boundary value problems. Orig. art. has: 98 formulas, 4 figures.

SUB CODE: 12/ SUBM DATE: 13Aug65/ ORIG REF: 009/ OTH REF: 001

Card 2/2

L 47000-66 EWP(k)/EWT(d)/EWT(m)/EWP(w) IJP(c) EM/RM

ACC NR: AR6027168 SOURCE CODE: UR/0264/66/000/005/A008/A008

AUTHOR: Aleksandrov, A. Ya.; Trofimova, E. P.

36
B

ORG: none

TITLE: Local stability of three-layered plates with honeycomb fillers at longitudinal compression

SOURCE: Ref. zh. Vozdushnyy transport, Abs. 5A50

REF SOURCE: Sb. Raschety elementov aviats. konstruktsiy. Vyp. 4. M., Mashinostroyeniye, 1965, 5-18

TOPIC TAGS: stability, honeycomb structure, elastic deformation, compression

ABSTRACT: A study has been made of the local stability of three-layered plates with honeycomb fillers, having 6-face and 4-face cells, under uniform longitudinal compression of the plate in one and two directions. Equations have been obtained by an energy method for determining critical loads. The results obtained extend to a region of elastic-plastic deformations and are verified by experiments. Com-

Card 1/2 UDC: 629.13:539.4:620.1

L 47000-66

ACC NR: AR6027168 O

parisons of critical loads were also carried out for plates with 6-face and 4-face honeycombs. Orig. art. has: 8 figures. Bibliography of 3 titles. [Translation of abstract]. [NT]

SUB CODE: 11/

Card 2/2

L 47016-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(k) IJP(c) WW/EM/RM

ACC NR: AR6027165 SOURCE CODE: UR/0264/66/000/005/A008/A008

38
B

AUTHOR: Aleksandrov, A. Ya.; Naumova, M. P.

TITLE: Optimum parameters of three-layered plates and flat shells with honeycomb fillers under compression

SOURCE: Ref. zh. Vozdushnyy transport, Abs. 5A47

REF SOURCE: Sb. Raschety elementov aviats. konstruktsiy, Vyp. 4, M., Mashinostroyeniye, 1965, 19-41

TOPIC TAGS: flat plate, honeycomb filler, shell, compression

ABSTRACT: The problem is solved for determining the optimum (minimum weight) parameters of three-layered plates and flat shells under longitudinal compression. Plates and shells with identical outside layers and honeycomb fillers with regular hexagon-shaped cells were studied. It was considered that the critical values of a longitudinal compressible load per unit of width of a panel, the panel material, and size in the design were known. An example was

Card 1/2 UDC: 629.13:539.4

L 47016-66

ACC NR: AR6027165

presented for calculating a cylindrical panel which is rectangular in design and simply supported along its outline. Orig. art. has: 16 figures. [Translation of abstract] [NT]

SUB CODE: 11/

Card 2/2 vmb

L 47018-66 EWT(d)/EWT(m)/EWP(w)/EWP(k) IJP(c) EM/RM
ACC NR: AR6027167 SOURCE CODE: UR/0264/66/000/005/A008/A008

28
B

AUTHOR: Aleksandrov, A. Ya.

TITLE: Determination of reduced elastic parameters of honeycomb fillers

24

SOURCE: Ref. zh. Vozdushnyy transport, Abs. 5A49

REF SOURCE: Sb. Raschety elementov aviats. konstruktsiy, Vyp. 4, M., Mashinostroyeniye, 1965, 59-70

TOPIC TAGS: elastic modulus, shear modulus, honeycomb filler

ABSTRACT: A problem is solved for determining the reduced elastic parameters of honeycomb fillers with 6-face cells in a case when honeycomb plates have no initial bends and retain their stability under operating loads. Oridinary design equations have been obtained for some of these cases. A problem of determining reduced elastic and shear moduli has been investigated for a case when honeycomb elements have an initial bend or are losing their stability. Equations are also derived for determining the reduced elastic parameters of

Card 1/2 UDC: 539.4:620.1

L 47018-66
ACC NR: AR6027167

honeycomb filler with 4-face cells. Orig. art. has: 8 figures. Bibliography of 3 titles. [Translation of abstract] [NT]

SUB CODE: 11/

Card 2/2 vmb

L 08389-67 EWT(d)/EWT(m)/EWP(w)/EWP(k) IJP(c) EM/RM

ACC NR: AR6032360 SOURCE CODE: UR/0264/66/000/007/A008/A008

AUTHOR: Aleksandrov, A. Ya.; Shpan, G. S.

34
B

TITLE: Calculating the compressive strength for local stability of three-layer plates with corrugated fillers

SOURCE: Ref. zh. Vozdushnyy transport, Abs. 7A58

REF SOURCE: Sb. Raschety elementov aviats. konstruktsii. Vyp. 4. M., Mashinostroyeniye, 1965, 42-58

TOPIC TAGS: compressive strength, plasticity, plastic deformation, plate, thin plate, filler

ABSTRACT: This investigation concerns two configurations of the local stability loss during compression in one or two directions of a thin three-layer plate with a corrugated filler. In determining the ultimate loads, the deformation energy displacement is considered for the middle surface of the cylindrical parts of the corrugated filler. In plates with surface layers of different thicknesses, other states are discussed when the distortions of the surface layers vary. A case

Card 1/2 UDC: 629.13.539.4

L 08389-67
ACC NR: AR6032360

when one of the surface layers has lost its stability while the other has remained unchanged is also considered possible. The authors emphasize that in compression of a plate with surface layers of different thicknesses, the loss of local stability by one of the surface layers represents the loss of supporting power over the entire plate. The results obtained are approximate for the performance of a plate in the region of plasticity. Orig. art. has: 7 figures and a bibliography of 2 reference items. [Translation of abstract]

SUB CODE: 20/

Card 2/2 LS

ALEKSANDROV, A. Ya., inzhener; NIKUL'SHIN, K., inzhener.

New tower crane. Sel'.stroi. 11 no.5:21 My '56. (MLRA 9:9)
(Cranes, derricks, etc.)

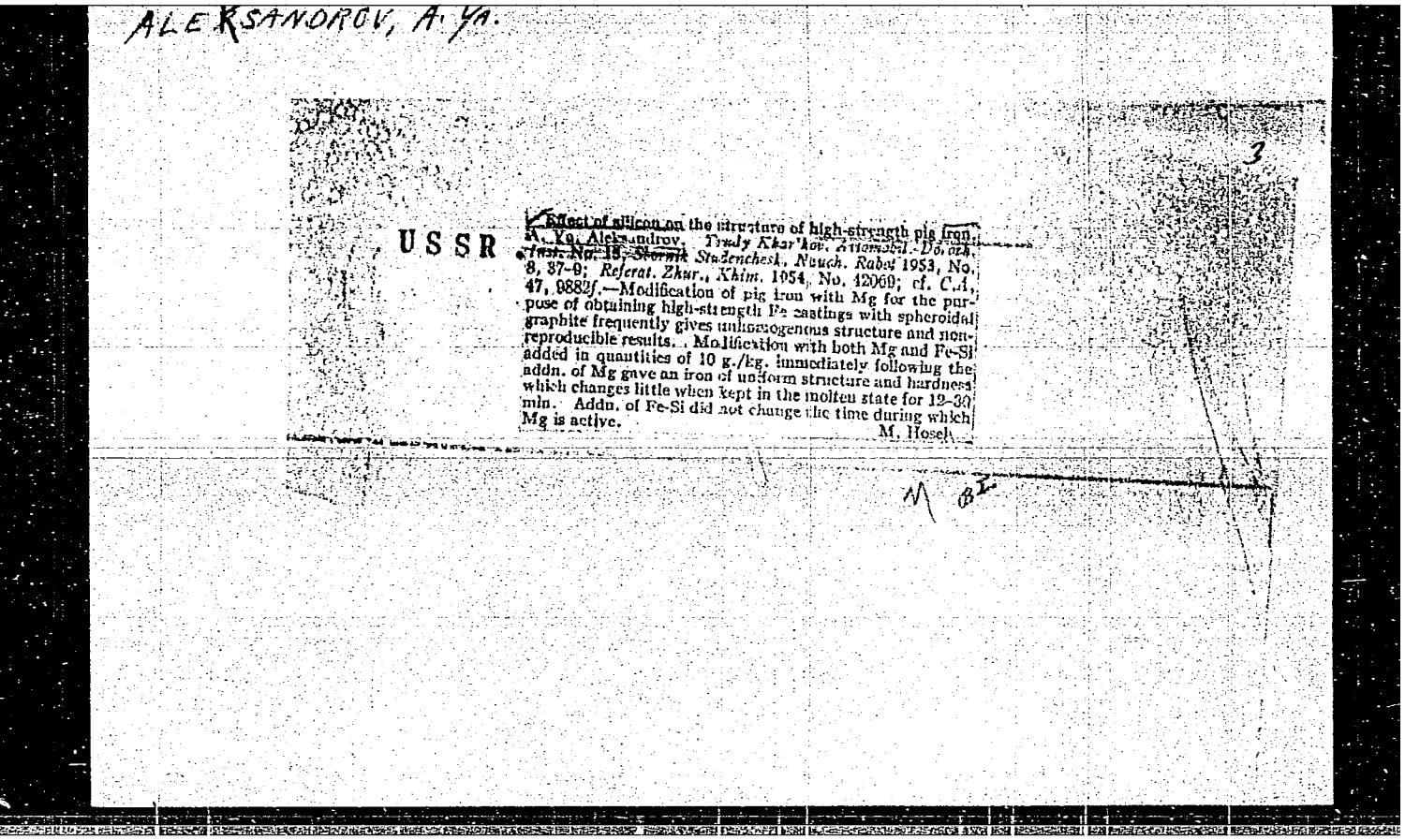
1. ALEKSANDROV, A. Ya.

2. USSR (600)

4. Cranes, Derricks, Etc.

7. From work experience of D. A. Lis'ikh Stakhanovite team in the installation of electric equipment of a bridge crane. Biul.stroi.tekh., 10, no. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.



ALEKSANDROV, A. YA.

3

USSR

Effect of silicon on the structure of high-strength pig iron. A. Ya. Aleksandrov. *Trudy Khar'kov. Avtomobil.-Do'zh. Inst. No. 15, Sbornik Studencheskikh Nauch. Rabot* 1953, No. 8, 87–9; *Referat. Zhur., Khim.* 1954, No. 42069; cf. C.A., 47, 9882*f*.—Modification of pig iron with Mg for the purpose of obtaining high-strength Fe castings with spheroidal graphite frequently gives inhomogeneous structure and non-reproducible results. Modification with both Mg and Fe-Si added in quantities of 10 g./kg. immediately following the addn. of Mg gave an iron of uniform structure and hardness which changes little when kept in the molten state for 12–30 min. Addn. of Fe-Si did not change the time during which Mg is active.

M. Hosch

M BL

ALEKSANDROV, A.Ye.

16(1);10(2) PHASE I BOOK EXPLOITATION SOV/2659

Akademiya nauk SSSR. Institut mekhaniki

Inzhenernyy sbornik, t. 25 (Engineering Symposium, Vol. 25) Moscow, Izd-vo AN SSSR, 1959. 218 p. Errata slip inserted. 2,200 copies printed.

Ed.: A.A. Il'yushin; Ed. of Publishing House: D.M. Ioffe; Tech. Ed.: Ye. V. Makuni.

PURPOSE: This book is intended for applied mathematicians, physicists and engineers.

COVERAGE: The book is a collection of articles published by the Department of Engineering Sciences of the Institut mekhaniki (Institute of Mechanics) of the Academy of Sciences, USSR. The articles discuss various aspects of the mechanics of materials and of fluid mechanics, such as stress and bending of beams, shells, plates and reels, supersonic gas flows, vibrarions, etc. The problems are treated in a highly theoretical, i.e., mathematical, manner. References are given at the end of each article.

TABLE OF CONTENTS:
Card 1/5

Engineering Symoposium, Vol. 25 SOV/2659

Karpychev, V.A. On the Displacement of a Water-Oil Contact in Formations With Bottom Water 208

AVAILABLE: Library of Congress

Card 5/5

LK/gmp
12-29-59

ALEKSANDROV, A.Ye., inzh.

Actual testing of turbines of the Nizhne-Svirskaya Hydroelectric Power Station. Gidr. stroi. 30 no.10:31-37 O '60. (MIRA 13:10)
(Nizhne-Svirskaya Hydroelectric Power Station)
(Turbines--Testing)

SHTEYN, Ya.Sh., kand.tekhn.nauk, starshiy nauchnyy sotrudnik;
REZNIKOV, I.N., kand.tekhn.nauk, starshiy nauchnyy sotrudnik;
ALEKSANDROV, A.Ye., inzh.

Lightweight concretes made with slag "pumice." Bet. i zhel.-bet. 8 no.11:511-513 N '62. (MIRA 15:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov Akademii stroitel'stva i arkhitektury SSSR (for Shteyn, Reznikov). 2. Nachal'nik TSentral'noy nauchno-issledovatel'skoy laboratorii Lipetskogo soveta narodnogo khozyaystva (for Aleksandrov).
(Slag)
(Lightweight concrete)

ALEKSANDROV, A.Ye., inzh.

Field tests of a reversive hydrogenerator thrust bearing.
Elektrotekhnika 35 no.3:1-5 Mr '64. (MIRA 17:5)

L 26472-66 EWT(m)/T DJ

ACC NR: AP6017395 SOURCE CODE: UR/0104/66/000/001/0042/0049

30

B

AUTHOR: Aleksandrov, A. Ye. (Engineer)

ORG: none

TITLE: Studies of a hydraulic-block bearing for a hydraulic generator

SOURCE: Elektricheskiye stantsii, no. 1, 1966, 42-49

TOPIC TAGS: electric generator, roller bearing, water turbine, hydroelectric power plant

ABSTRACT: This is the first of a series of bearings of this kind. It consists of 10 segments, can support a load of 1,500 tons, has a mean peripheral speed of 8.9 m/sec, and is designed for installation in a 40,000 kw hydraulic generator linked to an adjustable-blade hydraulic turbine. Operating trials of this bearing at the Verkhne-Svirskaya Hydroelectric Power Station demonstrated its satisfactory operating qualities. The temperature of its segments does not exceed 59°C despite the high unit pressures and considerable pulsations. All startups of the hydraulic generator-turbine unit following its shutdown for a period of from several days to 3 min were carried out completely normally, although it is exactly in

Card 1/2 UDC: 621.224-131.1

L 26472-66

ACC NR: AP6017395

the startup regimes that the bearing will be used to replace the conventional 16-segment rigid-adjustable-block bearings. The design of this new bearing has been described previously (K. F. KOSTIN, M. N. GRUZOV. "Hydraulic-Block Bearing for High-Capacity Hydraulic Generators," Vestnik Elektropromyshlennosti, 1955, No 4). Orig. art. has: 8 figures and 4 tables. [JPRS]

SUB CODE: 13, 10 / SUBM DATE: none / ORIG REF: 008

Card 2/2

L 31569-66 EWT(d)/EWT(m)/EWP(w)/EWP(t)/ETI/EWP(k) LJP(c) JD/EM/GD/JH
ACC NR: AT6011760 SOURCE CODE: UR/0000/65/000/000/0059/0073

AUTHOR: Aleksandrov, A. Ya. (Doctor of technical sciences, Professor); Trofimova, E. P.

ORG: none

TITLE: Comparison of the results of the calculation and tests for longitudinal compression of sandwich plates with a honeycomb filler

SOURCE: Raschety elementov aviatsionnykh konstruktsiy, vyp. 3: Trekhsloynyye paneli i obolochki (Calculation of aircraft construction elements, no. 3: Sandwich panels and shells). Moscow, Izd-vo Mashinostroyeniye, 1965, 59-73

TOPIC TAGS: sandwich structure, honeycomb structure, structure panel, shell structure stability, compressive strength

ABSTRACT: This article compares the results of the calculation and tests for longitudinal compression of sandwich structures with hexahedral honeycombs. The external layers of the plate were made of duralumin and steel, and the honeycombs of duralumin and steel foil. In testing, only two edges were loaded, the two edges without loads remained free. Most of the tests showed a loss in the total stability of the panels, and in individual cases a loss in the local stability of the external layers. The parameters of the plates, the results of the calculations, and the results of the tests are presented in detailed tables. The experimental

Card 1/2 UDC 629.13.011.1:638.144:539.4

L 31569-66

ACC NR: AT6011750 2

part of the work (excluding the tests of plastic samples) was performed by R. I. Rokityanskiy and Yu. A. Kalachev. Orig. art. has: 3 tables, 14 figures, and 11 formulas.

SUB CODE: 13 / SUBM DATE: 25Oct65 / ORIG REF: 004

Card 2/2 LC

L 30962-66 EWT(d)/EWT(m)/EWP(w) IJP(c) EM

ACC NR: AP6002324 SOURCE CODE: UR/0373/65/000/006/0094/0099

AUTHORS: Aleksandrov, A. Ya. (Novosibirsk); Solov'yev, Yu. I. (Novosibirsk) 46 B

ORG: none

TITLE: Application of analytic functions of a complex variable to the solution of three-dimensional nonaxisymmetric problems in the theory of elasticity for a body of revolution 16, 44, 55 24

SOURCE: AN SSSR. Izvestiya. Mekhanika, no. 6, 1965, 94-99

TOPIC TAGS: elasticity theory, analytic function, complex function, stress analysis, body of revolution

ABSTRACT: The method of complex variables is used to solve three-dimensional problems in elasticity theory for a body of revolution. The body is assumed to be continuous and isotropic, with a contour as shown in Fig. 1. The analysis is based on the auxiliary-state displacement theory given by

$$2Gu_1 = \mathrm{Re}\left[\varkappa\varphi(\zeta;\alpha) - (2z-\zeta)\frac{\partial\varphi}{\partial\zeta} - \psi(\zeta;\alpha)\right], \qquad 2Gv_1 = \mathrm{Im}\left[i\Phi(\zeta;\alpha)\right]$$

$$2Gu_1 = \mathrm{Im}\left[\varkappa\varphi(\zeta;\alpha) + (2z-\zeta)\frac{\partial\varphi}{\partial\zeta} + \psi(\zeta;\alpha)\right],$$

where the functions ϕ, Φ and ψ are analytic and can be expressed in trigonometric series. This leads to expressions for the displacements u, v, and w given by

Card 1/3 2

$$2Gw = \sum_{n=-\infty}^{\infty} \frac{e^{in\theta}}{\pi i} \int_{\bar{t}}^{t} [\varkappa\varphi_n(\zeta) - (z-\zeta)\varphi_n'(\zeta) - \psi_n(\zeta)]\, T_n\left(\frac{\zeta - z}{ri}\right) \frac{d\zeta}{\sqrt{(\zeta - t)(\zeta - \bar{t})}}$$

$$2G(u+iv) = \sum_{n=-\infty}^{\infty} \frac{e^{in\theta}}{\pi} \int_{\bar{t}}^{t} [\varkappa\varphi_n(\zeta) + (z-\zeta)\varphi_n'(\zeta) + \psi_n(\zeta) +$$

$$+ i\Phi_n(\zeta)]\, T_{n+1}\left(\frac{\zeta - z}{ri}\right) \frac{d\zeta}{\sqrt{(\zeta - t)(\zeta - \bar{t})}} \qquad \left(\begin{matrix} t = z + ir, \\ \bar{t} = z - ir, \end{matrix} \quad T_n\left(\frac{\zeta - z}{ri}\right) = \cos n\beta\right).$$

where T_n is a Chebyshev polynomial of the first kind. The above expressions for the displacement are then used to obtain formulae for the stresses σ_z, σ_r, σ_θ, $\sigma_{r\theta}$, $\sigma_{z\theta}$, σ_{rz}.

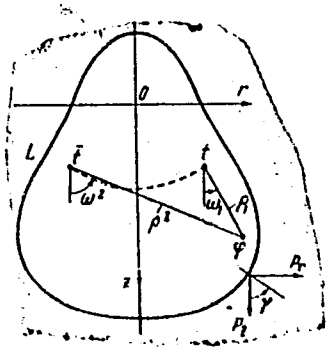


Fig. 1.

L 30962-66

ACC NR: AP6002324

The analytic functions are then represented in terms of Cauchy integrals

$$\varphi_n(\zeta) = \frac{1}{2\pi i}\int_L \frac{f_n(\sigma)\,d\sigma}{\sigma-\zeta}, \quad \psi_n(\zeta) = \frac{1}{2\pi i}\int_L \frac{g_n(\sigma)\,d\sigma}{\sigma-\zeta}, \quad \Phi_n(\zeta) = \frac{1}{2\pi i}\int_L \frac{F_n(\sigma)\,d\sigma}{\sigma-\zeta}$$

For the asymmetric sphere, the analytic complex functions are given by

$$\varphi_n(\zeta) = \sum_{m=0}^{\infty} \alpha_{nm}\zeta^m, \quad \psi_n\zeta = \sum_{m=0}^{\infty} \beta_{nm}\zeta^m, \quad \Phi_n(\zeta) = \sum_{m=0}^{\infty} \gamma_{nm}\zeta^m$$

with the following conditions

$$\alpha_{nm} = (-1)^n\alpha_{-n,m}, \quad \beta_{nm} = (-1)^n\beta_{-n,m}, \quad \gamma_{nm} = (-1)^n\gamma_{-n,m}$$

The resulting expressions for the stresses are shown to be given in Legendre polynomials. Orig. art. has: 24 equations and 1 figure.

SUB CODE: 20/ SUBM DATE: 05Aug63/ ORIG REF: 004

Card 3/3

L 29829-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(k) IJP(c) WW/BB

ACC NR: AP6011327 SOURCE CODE: UR/0198/66/002/003/0001/0009

43
B

AUTHORS: Aleksandrov, A. Ya. (Novosibirsk); Akhmetzyanov, M. Kh.; Rakin, A. S.

ORG: Novosibirskiy Institute of Railroad Transport Engineers (Novosibirskiy institut inzhenerov zhel.-dor. transporta)

TITLE: A study of elastoplastic deformation of shells with openings and reinforcements by the method of photoelastic coverings

SOURCE: Prikladnaya mekhanika, v. 2, no. 3, 1966, 1-9

TOPIC TAGS: shell, cylindric shell, photoelasticity, stress measurement

ABSTRACT: Experiments were performed to study the stressed state of cylindrical shells with reinforced and nonreinforced circular, square, and rectangular openings in tension and in torsion. The experimental method used is the one of photoelastic coverings, in which the surface of the shell is covered with a thin covering of an optically active material. Shell deformations under loading are transmitted to the photoelastic covering and are manifested in the covering as the dual wave radiation, which is measured with the aid of a polarization device for reflected light. The equation

$$\delta = 2C\int_0^t (e_1 - e_2)\,dz$$

expresses the relationship of the optical difference of shift δ with the difference of

Card 1/2

AIEKSANDROV, B., inzh.

Hawthorn and its curative action upon the heart and blood vessels. Priroda Bulg 10 no.5:86-88 S-O '61.

1. Upravlenie na gorskoto stopanstvo.

*

LABUTIN, L.; ALEKSANDROV, B.

Shortwave and ultrashortwave receiver. Radio no.11:29-30 N'55.
(Radio, Shortwave) (MLRA 9:1)

29(SOV/25-59-7-31/53

AUTHOR: Aleksandrov, B.

TITLE: A Lunar Power Plant

PERIODICAL: Nauka i zhizn', 1959, Nr 7, p 68 (USSR)

ABSTRACT: This is a satire on the Westinghouse Electric Company's project to build a lunar power plant on the yet unconquered moon. The project will work as follows: large, wire-made screens covered with both a plastic and a special compound will be installed on the moon surface; lit by sunbeams, the compound will emit electrons which are to be picked up by wire nets. During this process, a difference in electric potentials will arise, with solar energy to be converted into electric power. One hectare of the screen-covered area is scheduled to yield about 3,000 kw/hrs. There is 1 caricature.

Card 1/1

ALEKSANDROV, B.; AYVAZ'YAN, V., doktor tekhn.nauk, starshiy nauchnyy sotrudnik;
KARAULOV, N., doktor tekhn.nauk, strashiy nauchnyy sotrudnik;
FEL'DMAN, M., doktor tekhn.nauk, strashiy nauchnyy sotrudnik

Biased attitude to the construction of hydroelectric power stations.
NTO 3 no.8:19-22 Ag '61. (MIRA 14:9)

1. Chlen-korrespondent AN SSSR, zaveduyushchiy sektotom gidroenergetiki energeticheskogo instituta imeni G.M. Krzhizhanovskogo (for Aleksandrov). 2. Energeticheskiy institut imeni G.M. Khzhizhanovskogo (for Ayvaz'yan, Karaulov, Fel'dman).
(Hydroelectric power stations)

ALEKSANDROV, B.; ARKHAROVA, L.Ya., otv. red.; PRONINA, T.L., tekhn. red.

[For young poultry breeders] IUnym ptitsevodam. Moskva, Izd-vo "Detskii mir," 1961. 1 fold.l. (Prilozhenie k zhurnalu "IUnyi tekhnik," no.20(110)) (MIRA 14:9)

1. TSentral'naya stantsiya yunykh tekhnikov, Moscow.
(Poultry houses and equipment)

ARUTYUNOV, V.Ya., prof.; VARIN, I.Ye., vrach; GUSAROVA, A.S., kand.med.nauk
ROZENTUL, L.M., vrach-kosmetolog; ROSSOVA, M.M., kand.biolog.nauk;
ALEKSANDROV, B.; GOLYAKHOVSKIY, V.Yu., kand.med.nauk

Health hints. Zdorov'e 9 no.4:30-31 Ap'63. (MIRA 16:7)
(HYGIENE)

ALEKSANDROV, B.

Aleksandrov, B. Lesopolzuvane za III i IV kurs (VI i VII kl.) Na gorski tekhnikumi. Sofiya (Narodna prosveta) 1952. 294 p. (The wood-using industry; a textbook for the third and fourth courses in the technical schools of forestry.)

SO: Monthly List of East European Accessions, L.C. Vol. 3 No. 1 Jan. '54 Uncl.

ALEKSANDROV, B.

" Antifire Measures in the Forests, " p. 174.
(Gorsko Stopanstvo, Vol.8, No.4, Apr. 1952, Sofiya.)

SO: Monthly List of East European Accessions, Vol.2, No.9 /Library of Congress, September 1953, Uncl.

ALEKSANDROV, B.

"Chemical Methods of Fighting Forest Fires", P. 359. (GORSKO STOPANSTVO, Vol. 10, No. 8, Oct. 1954, Sofiya, Bulgaria)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 6, June 1955, Uncl.

ALEKSANDROV, B. - Gorsko Stopanstvo

Advantage of chemical methods of fighting forest fires. p. 174
(GORSKO STOPANSTVO Vol. 11, No.4, Apr. 1955)

SO: Monthly List of East European Accession, (EEAL), LC, Vol. 4, No. 9, Sept. 1955, Uncl.

ALEKSANDROV, B.

Aleksandrov, B. Josef Kantor's Forests of the New Bulgaria; a review of a Czech book. p.382.

Vol. 11, no. 8, Oct. 1955 GORSKO STOPANSTVO Sofiya, Bulgaria

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 2 February, 1956

ALEKSANDROV, B.

Fire prevention measures in our forests and their expediency. p. 28.

GORSKO STOPANSTVO VOL. 12, no. 1, Jan. 1956

Sofiya, Bulgaria

so. EAST EUROPEAN ACCESSIONS LIST VOL. 5, no. 7, July 1956

ALEKSANDROV, B.

ALEKSANDROV, B. Most important tasks in forest conservation in Czechoslovakia. p. 316.

Vol. 12, No. 7, Sept. 1956.
GORSKO STOPANSTVO
AGRICULTURE
Sofiia, Bulgaria

So: East European Accession, Vol. 6, No. 2, February 1957

ALEKSANDROV, B.; STAKHURSKIY, A.Ye., red.; ARKHAROVA, L.Ya., red.izd-va; LEBEDEV, O.S., tekhn.red.

[For young vegetable growers] IUnym ogorodnikam. Moskva, M-vo kul'tury RSFSR, Izd-vo "Detskii mir", 1959. 1 fold. (Prilozhenie k zhurnalu "IUnyi tekhnik," no.15(57)).

(MIRA 14:1)

1. TSentral'naya stantsiya iunykh tekhnikov, Moscow.
(Vegetable gardening)

ALEKSANDROV, Boian, inzh.

Winter pine-shoot moth Evetria buoliana. Prir i znanie 13 no.6: 16-17 Je '60. (EEAI 10:1)
(Rhyacionia buoliana) (Pine-shoot moth)

ALEKSANDROV, B.

Fresh mushrooms all year round! IUn.nat. no.5:38 '61.
(MIRA 14:3)
(Mushrooms, Edible)

ALEKSANDROV, B.; STAKHURSKIY, A.Ye., red.; ARKHAROVA, L.Ya., otv. red.; SHCHEPTEVA, T.N., tekhn. red.

[For young fruit growers] IUnym sadovnikam. Moskva, Izd-vo "Detskii mir" 1961. 1 fold l. (Prilozhenie k zhurnalu "IUnyi tekhnik," no.17(107)) (MIRA 14:8)

1. TSentral'naya stantsiya yunykh tekhnikov, Moscow.
(Fruit culture)

ALEKSANDROV, B.

From the first vegetable bed. Zdorov'e 8 no.4:30 Ap '62.
(MIRA 15:4)

(VEGETABLE GARDENING)